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U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Service
Office of Response and Restoration
Coastal Protection and Restoration Division
c/o EPA Region X (ECL-117)
1200 Sixth Avenue
Seattle, Washington 98101

July 31, 2002

Ms Anna Filutowski
US EPA Region X (WCM-126)
1200 Sixth Avenue
Seattle, WA 98101

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Comments re: Transformer PCB Investigation Plan, Boeing Plant 2, Seattle/Tukwila, WA.
Submitted to: The Boeing Co by Weston Solutions, Inc., dated June 27, 2002.

Dear Ms Filutowski:

The National Oceanic and Atmospheric Administration (NOAA) appreciates the opportunity to comment of the above mentioned Investigation Plan. As you know, NOAA is a trustee for aquatic habitats, fish and other aquatic species in the coastal areas of the United States. NOAA is very interested in the clean-up activities in the Lower Duwamish Waterway (LDW), including Boeing Plant 2. The Lower Duwamish provides important habitat for juvenile salmonids as well as migration access to and from the Duwamish/Green River watershed. Several species of salmonids use the waterway including Chinook salmon, listed as threatened by The National Marine Fisheries Service (NMFS) under the Endangered Species Act (ESA), and Coho salmon, a candidate species for listing under ESA.

Background: The existing data, as shown on Figure 3 of the document, includes soil samples from a variety of depths collected at 15 locations within proximity to the transformer(s) and the pad upon which they are situated. Many of these samples don't include a surface sample (0-3 ft or less), most are reported only as a detection limit ("U" qualified), and the vast majority also have a "T" qualifier that is not explained in the Figure, the Investigation Plan or the QAPP.

Greatest Shortcomings: Boeing's proposal does not gauge enough monitoring wells to establish groundwater gradients between the transformers and the River, and it does not address the tidal influence of the River on adjacent groundwater. The proposal does not provide a rationale for the locations of soil samples, which are located predominantly on the adjacent (Jorgensen) property, nor does it provide a scheme for determining which samples will be sent for chemical analysis. There isn't any description regarding the collection and analysis of bank and sediment samples.

Specific Comments:

- 1.) The green oval in the Figures surrounding the transformers needs to be identified and described in the investigation plan. Is this a containment berm or pad? What is its condition?
- 2.) Figure 2 and the QAPP both should indicate the meaning of the data qualifiers "U" and "T".
- 3.) Figure 2 should indicate the depth interval that was sampled, unless the data shown are actually from a discrete interval of 0.1 ft.



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4.) A data table should be provided with a brief description of the sampling and analytical methods used to acquire the data shown in Figure 2.

5.) Figure 1 identifies an orange polygon to the west of the transformers and pad as the "area of interest", but not one of the proposed sampling locations are within this area.

6.) Pg. 3-1 indicates that Roy Jensen "will direct the hydrogeology investigation, including groundwater contamination characterization" and Dave Dinkuhn will "direct the soil investigation ... and the groundwater investigation." Exactly who is "in charge" of the hydrogeo-groundwater planning and data analysis, and who is in charge (and subordinate?) for field collection activities?

7-10.) Figure 3 indicates 36 proposed locations for new soil samples, five locations for "bank" samples and five locations for sediment samples. On pg. 4-3 of the Investigation Plan it is noted that: "Soil samples from the surface and 2.5 ft intervals will be taken in all borings beyond the immediate vicinity of the Transformers and will be analyzed, and if the presence of PCBs is indicated, samples from deeper intervals will be analyzed.

There are several problems with this statement:

7.) The "immediate vicinity of the transformers" isn't defined.

8.) Figure 3 shows 24 proposed sampling locations to the south/southwest of the transformers on the adjacent property, and only 12 sampling locations on the Plant 2 facility. No explanation is given for sampling on a denser grid and over a larger area on the adjacent property.

9.) Visual observations should be provided, especially if they are likely to explain the observed distribution of contamination. For example, are there cracks in the transformer pad, or sumps, piping, or dry-wells, that could explain why surface contamination appears to be discontinuous? For example, at station SB-07207, the surface (0-2 ft) sample is reported at 22,000 ppb "T", while Sample SB-07204, closer to the pad, is reported at 130 ppb "T".

10.) What criteria will be used to determine that "the presence of PCBs is indicated"? It is recommended that Boeing take continuous samples at 2.5 ft intervals, from 0-15 ft, in each soil or bank sampling location because there isn't any basis to assume that PCBs are not migrating horizontally below the surface. For example, at station PL-006A, the only reported concentration is 3800 ppb PCBs, taken at a depth of 10.6 ft. There isn't any data reported for shallower depths, therefore, we do not know whether shallower soils at this location are contaminated. If the PCBs did not migrate vertically downward from the surface, the PCBs must have migrated horizontally in the subsurface, that is, deeper soil became contaminated without any significant contamination at the surface, directly above.

11.) Locations to sample should be prioritized, concentrating first in likely soil release locations, such as cracks in the pad, then at the edge of the pad and, subsequently, moving away from the pad in an orderly and unbiased manner.

12.) The budgeted analyses allow for only 16 continuous cores of 6 samples each. The small number of analyses makes it more likely that an additional round of sampling will be required later, in order to fully determine the full horizontal and vertical extent of contamination. We recommend including more analyses in the initial round of sampling.

13.) There wasn't any detailed description for the collection of bank samples. It is recommended that bank samples, also, be analyzed as continuous cores at 2.5 ft intervals to 15 ft depth or refusal.

14.) All soil and sediment samples should be analyzed for Total Organic Carbon (TOC), an inexpensive analysis that will assist in evaluating whether the PCB contamination is in an oil phase and mobile, and additionally to assess whether it is bio-available.



15.) The three locations for proposed groundwater samples are existing wells, as indicated on Pg. 4-2. Over what depth intervals will the groundwater samples be collected and what aquifer will be characterized?

16.) Do the wells proposed for sampling have groundwater gradients that change in response to the tides in the Duwamish River, and if so, how will Boeing/Weston control and/or compensate for this effect on hydraulic gradient measurements?

17.) The wells proposed for sampling can not provide data to establish an average gradient from the transformers to the River. The transformers should be located within a polygon drawn by connecting the wells proposed for sampling. The average gradient between the most contaminated sample, at SB-07207 (to the east of the transformers), and the River, cannot be measured unless a well to the east of the transformers is sampled. Similarly, the proposed wells do not provide data to develop a gradient from the transformers to the River in the north-northwest direction, across the Plant 2 facility. Additional groundwater wells should be gauged in order to establish hydraulic gradients from "above" the transformers to the shoreline on both the Jorgensen and the Boeing properties.

18.) NOAA recommends that PCBs in groundwater be reported on both a whole water (unfiltered, uncentrifuged) basis and as dissolved concentrations. If only one analysis is completed, the whole water sample is more representative of what is potentially moving through the aquifer.

19.) Over what depth interval is it proposed to collect sediment samples? NOAA recommends that sediment samples be collected from 0-10 cm. for initial characterization of risk to aquatic organisms.

20.) All sediment samples should have TOC analysis, and grain size analysis would be helpful in assessing deposition/erosion potential of sediment.

21.) Since the Jorgensen shoreline is contiguous with the southwest yard, it would be efficient (and reasonable) to include analysis for RCRA metals in the 5 soil samples proposed on the bank and the 5 proposed sediment samples, to establish whether the contaminated fill found in the southwest yard affected a broader area, including aquatic habitat.

Once again, NOAA appreciates EPA's ongoing coordination with the trustees and the opportunity to comment on important deliverables pertaining to clean-up activities along the LDW. If you have any questions, please do not hesitate to contact me (206) 553-2852, or Gayle Garman (206) 526-4542.

Sincerely,



David C. Powell
NOAA/ Associate CRC



cc: Alyce Fritz (NOAA/ORR chief) file copy
Gayle Garman (NOAA/ORR)
Greg Baker (NOAA/DAC)
Nick Iadanza (NOAA/DAC)
Robert Clark (NOAA/NMFS)
Jeff Krausmann (USFWS)
Glen St. Amant (Muckleshoot Indian Tribe)
Rich Brooks (Suquamish Tribe)
Craig Thompson (Ecology)
Laurie Vigue (WDFW)
Randy Carman (WDFW)
Sharon Holley (WDNR)
Wendy Brown (WDNR)

